

REMARKS

Claims 1, 11, 18, 26-40, 42, 43, and 48-61 are pending in this application.

Claim rejections under 35 USC § 103(a)

Claims 1, 11, 18, 26-40, 42, 43, and 50-61 are rejected under 35 USC § 103(a) as being unpatentable over Piccoli et al. (US Patent 6,118,037) and in view of Wismann et al.(WO 01/42392 A2). Claims 48 and 49 are rejected under 35 USC § 103(a) as being unpatentable over Piccoli et al. (US Patent 6,118,037) in view of Wismann et al.(WO 01/42392 A2) and further in view of Stowe (US Patent 5,035,804).

Applicant respectfully requests allowance of claims 1, 11, 18-23, 26-40, 42-43, 45-46, and 48-61.

Claim 1 is further amended to address the Examiner's concern with respect to the prior art of Piccoli et al. and Wismann et al.

Piccoli teaches removal of impurities by adsorption alone without any oxidation using a sorbent and washing the sorbent with a polar solvent to remove the impurity. There is no oxidation step. Wismann teaches specifically only the removal of odor causing mercaptans by adsorption **followed** by simultaneous oxidation. Wismann further teaches that upon oxidation of adsorbed mercaptans, the products formed are sulfides which being soluble in the liquid hydrocarbon media, actually desorb from the sorbent.

This is in sharp contrast to our specification, where oxidation of impurity occurs **as a necessary first step** and the oxidized impurity is then adsorbed. Our teaching is thus actually reverse of what Wismann teaches. Oxidation causes the impurity compound to become significantly more polar than the rest of the hydrocarbon stream, so our process is distinguished by the fact that the impurity is very selectively adsorbed, much more so than the simple adsorption of Piccoli.

Since the oxidation step in Wismann causes the oxidized impurity to actually solubilize in the liquid, there is no reason for a person skilled in the art to introduce oxidation taught by Wismann to the Piccolli adsorption process.

Our amended Claim 1 teaches the oxidation to oxidized compounds and their adsorption on a particulate catalyst impregnated sorbent.

Applicant respectfully submits that it will not be obvious from Wismann's patent and Piccolli's patent to a person skilled in the art to use oxidation and adsorption to remove impurities. Following oxidation in our method, the oxidized sulfur compound (typically sulfone or sulfoxide) which is highly polar, is much more selectively adsorbed with respect to other hydrocarbons by the particulate catalyst impregnated sorbent.

The adsorbed oxidized sulfur compound is also much more easily removed due to its high polarity by washing with a polar solvent to affect the rejuvenation of the particulate catalyst impregnated sorbent. Thus our method is significantly more selective and efficient than a method that used only adsorption as described by Piccolli.

The cited further references (i.e., Stowe and Fleck,) fail to cure the deficiencies of Piccolli and Wismann with respect to claim 1, from which all the remaining claims depend.

CONCLUSION

In view of the above, Applicant respectfully requests the reconsideration and withdrawal of all rejections, and a timely notice of allowance of claims 1, 11, 18-23, 26-40, 42-43, 45-46 and 48-61.

Should the Examiner have any questions, the Examiner is invited to contact the undersigned at the telephone number listed below.

Payment for the requested extension of time and Request for Continued Examination is made by credit card with this submission. The Director is authorized to charge any additional fee(s) or any underpayment of fee(s), or to credit any

overpayments to Deposit Account **50-0337**. Please ensure that Attorney Docket No. 7340-103/10615238 is referred to when charging any payments or credits for this case.

Respectfully submitted,

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